

[54] **ENDOVASCULAR STENT AND DELIVERY SYSTEM**

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[58] **Field of Search** 128/303 R, 325, 341-345, 128/334 R, 1 R; 623/13

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[57] **ABSTRACT**

A wire stent for insertion and expansion into a passageway comprises a plurality of curved sections that are formed into a generally circular configuration. Adjacent curved sections are joined by a bend or cusp, so that a series of alternating opposing loops are formed. The wire stent as formed has a cylindrical shape with a longitudinal opening through which a folded balloon catheter is inserted. The opposing loops are tightly contracted about the catheter so that the cylindrical shape has an overlapping region in which portions of adjacent loops longitudinally overlap. The loops are arranged so that when the balloon catheter is inflated, adjacent loops diverge circumferentially relative to each other, thereby decreasing the overlapping region while increasing the diameter of the cylindrical shape. As the diameter of the cylindrical shape increases, the wire stent contacts the surface of a passageway in which the stent is inserted.

In a method of the present invention, the wire stent is fabricated from a wire formed into a planar serpentine configuration. The wire is centered over a semi-cylindrical trough in a flat plate and then pressed into the trough by a forming bar so that a portion of the wire assumes the semi-cylindrical shape. A pulling tool, having a hook at one end, is engaged at the hook with the exposed loops of the serpentine configuration for pulling the exposed loops over the exposed portion of the forming bar to form a generally cylindrical shape from the wire. Once the wire is extracted from the trough and the forming bar is removed, a folded balloon catheter is inserted through the cylindrical shape and the wire is tightly pressed about the catheter.

31 Claims, 5 Drawing Sheets

